

WHAT IS CLAIMED IS:

1. An electric drive control apparatus, comprising:
 - an electrically operated machine;
 - instruction value calculation processing means for calculating an instruction value based on a target electrically operated machine torque representing a target value of the electrically operated machine torque and on a rotational speed of the electrically operated machine;
 - output signal calculation processing means for calculating an output signal based on the instruction value;
 - a current generating unit that generates a current based on the output signal and that supplies the current to the electrically operated machine;
 - change-in-the-voltage-saturation calculation processing means for calculating, based on the instruction value, a change in the voltage saturation that varies depending upon the degree of occurrence of the voltage saturation accompanying the drive of the electrically operated machine; and
 - change-in-the-control-quantity correction processing means for correcting a change in the control quantity based on the change in the voltage saturation, the change in the control quantity being a magnetic pole position of the electrically operated machine.
2. The electric drive control apparatus according to claim 1, wherein the instruction value comprises a current instruction value and a voltage instruction value.
3. The electric drive control apparatus according to claim 2, wherein the voltage instruction value comprises a voltage instruction value of a non-interference term and a voltage instruction value of an integration term.
4. An electric drive control apparatus, comprising:
 - an electrically operated machine;
 - instruction value calculation processing means for calculating an instruction value based on a target electrically operated machine torque representing a target value of the electrically operated machine torque and on the rotational speed of the electrically operated machine;
 - output signal calculation processing means for calculating an output signal based on the instruction value;
 - a current generating unit that generates a current based on the output signal and that supplies the current to the electrically operated machine;

change-in-the-voltage-saturation calculation processing means for calculating, based on the output signal, a change in the voltage saturation that varies depending upon the degree of occurrence of the voltage saturation accompanying the drive of the electrically operated machine; and

change-in-the-control-quantity correction processing means for correcting a change in the control quantity based on the change in the voltage saturation, the change in the control quantity being a magnetic pole position of the electrically operated machine.

5. The electric drive control apparatus according to claim 4, wherein the change-in-the-voltage-saturation calculation processing means calculates a change in the voltage saturation based on the on time of the output signal.

6. An electric drive control apparatus, comprising:
an electrically operated machine;

instruction value calculation processing means for calculating an instruction value based on a target electrically operated machine torque representing a target value of an electrically operated machine torque and on the rotational speed of the electrically operated machine;

output signal calculation processing means for calculating an output signal based on the instruction value;

a current generating unit that generates a current based on the output signal and that supplies the current to the electrically operated machine;

change-in-the-voltage-saturation calculation processing means for calculating, based on the instruction value, a change in the voltage saturation that varies depending upon the degree of occurrence of the voltage saturation accompanying the drive of the electrically operated machine; and

change-in-the-control-quantity correction processing means for correcting a change in the control quantity based on the change in the voltage saturation, the change in the control quantity being a rotational speed of the electrically operated machine.

7. The electric drive control apparatus according to claim 6, wherein the instruction value comprises a current instruction value and a voltage instruction value.

8. The electric drive control apparatus according to claim 7, wherein the voltage instruction value comprises a voltage instruction value of a non-interference term and a voltage instruction value of an integration term.

9. The electric drive control apparatus according to claim 6, wherein an instruction value corresponding to an electrically operated machine torque that can be

produced is generated when a target electrically operated machine torque generated accompanying the correction of the rotational speed of the electrically operated machine is greater than a limit electrically operated machine torque.

10. The electric drive control apparatus according to claim 6, wherein an instruction value that is generated at the center of a voltage limit ellipse as the rotational speed of the electrically operated machine becomes greater than a limit rotational speed of the electrically operated machine accompanying the correction of the rotational speed of the electrically operated machine.

11. An electric drive control apparatus, comprising:
 an electrically operated machine;
 instruction value calculation processing means for calculating an instruction value based on a target electrically operated machine torque representing a target value of the electrically operated machine torque and on the rotational speed of the electrically operated machine;

output signal calculation processing means for calculating an output signal based on the instruction value;

a current generating unit that generates a current based on the output signal and that supplies the current to the electrically operated machine;

change-in-the-voltage-saturation calculation processing means for calculating, based on the output signal, a change in the voltage saturation that varies depending upon the degree of occurrence of the voltage saturation accompanying the drive of the electrically operated machine; and

change-in-the-control-quantity correction processing means for correcting a change in the control quantity based on the change in the voltage saturation, the change in the control quantity being a rotational speed of the electrically operated machine.

12. The electric drive control apparatus according to claim 11, wherein the change-in-the-voltage-saturation calculation processing means calculates a change in the voltage saturation based on the on time of the output signal.

13. The electric drive control apparatus according to claim 11, wherein an instruction value corresponding to an electrically operated machine torque that can be produced is generated when a target electrically operated machine torque generated accompanying the correction of the rotational speed of the electrically operated machine is greater than a limit electrically operated machine torque.

14. The electric drive control apparatus according to claim 11, wherein an instruction value is generated at the center of a voltage limit ellipse as the rotational speed of the electrically operated machine becomes greater than a limit rotational speed of the electrically operated machine accompanying the correction of the rotational speed of the electrically operated machine.

15. An electric drive control method, comprising:
 calculating an instruction value based on a target electrically operated machine torque representing a target value of the electrically operated machine torque and on the rotational speed of the electrically operated machine;
 calculating an output signal based on the instruction value;
 generating a current based on the output signal;
 supplying the current to the electrically operated machine;
 calculating, based on the instruction value, a change in the voltage saturation that varies depending upon the degree of occurrence of the voltage saturation accompanying the drive of the electrically operated machine; and
 correcting the magnetic pole position depending upon the change in the voltage saturation.

16. A program for an electric drive control method, used with a computer, the program acting as:
 instruction value calculation processing means for calculating an instruction value based on a target electrically operated machine torque representing a target value of the electrically operated machine torque and on the rotational speed of the electrically operated machine;
 output signal calculation processing means for calculating an output signal based on the instruction value;
 change-in-the-voltage-saturation calculation processing means for calculating, based on the instruction value, a change in the voltage saturation that varies depending upon the degree of occurrence of the voltage saturation accompanying the drive of the electrically operated machine; and
 change-in-the-control-quantity correction processing means for correcting a magnetic pole position based on the change in the voltage saturation.